

*AMENDMENTS TO THE ABSTRACT*

Replace the Abstract with:

**Summary Abstract**

The invention is directed to a method for altering the ion conductivity of a membrane. The method comprises inserting a biological photoreceptor into the membrane. The biological photoreceptor is configured to act as a light-controlled ion channel. ~~Use of a biological photoreceptor as light-controlled ion channel for the alteration of the ion conductivity of a membrane by means of light.~~ The photoreceptor used comprises an apoprotein and a light-sensitive polyene covalently bound to the apoprotein, ~~said wherein the polyene interacting~~ interacts with the apoprotein and ~~functioning~~ functions as a light-sensitive gate.